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February 14, 2005

AGENDA ITEM 7a(2)

TO: MEMBERS OF THE INVESTMENT COMMITTEE

I. SUBJECT: Internal International Equity Management

II. PROGRAM: Global Equities

III. RECOMMENDATION: Information only. Staff requests feedback from the Investment Committee regarding funding of an internally managed international equity index portfolio beginning with approximately $5 billion and extending to as much as 50% of the passive international equity allocation. Initial funding would be subject to policy approval and ongoing funding would be dependent upon successful results. An opinion letter from Wilshire Associates is shown as Attachment 1.

IV. ANALYSIS:

Introduction

Over the past six months, CalPERS Global Equity Staff has supplemented its resources with two additional portfolio managers with more than 30 years of cumulative industry experience, 23 of those years in global quantitative and index portfolio management across domestic, international, developed and emerging markets. These portfolio managers come from Principal-level positions at State Street Global Advisors (SSgA) and Barclays Global Investors (BGI), the two largest and best known quantitative and index fund management shops in the global investment management industry.

With the expertise in international indexation now resident within Global Equity, Staff is soliciting the Committee's guidance on bringing in-house a portion of the nearly $30 billion FTSE international index fund currently managed externally by State Street Global Advisors. External management of CalPERS' existing FTSE international equity portfolio has been closely in-line with performance expectations and, as such, Staff's interest in potentially internalizing a portion of the management is not due to poor results on the part of the external manager.

For a thorough description of the logistics and architecture in place for internal management of international equity, please see the Business Plan that is included as Attachment 2.

<u>Background</u>

CalPERS has invested in international equity markets via a FTSE benchmarked index fund since 1989. Allocating assets to this segment of the global equity market is a significant component of the asset allocation decision of the Board, as well as a strategic building block of the CalPERS fund structure, providing diversification and return benefits. As plan assets have grown, so has the passive international mandate. In addition to overall plan growth, the SSgA international index fund has also grown due to active manager terminations where assets have been transferred into the passive portfolio.

At its present size, this portfolio represents approximately 17% of the entire CalPERS Fund and is more than 20 times the size of the next largest externally managed equity portfolio. It is CalPERS' second largest mandate (second only to the internally-managed custom Wilshire 2500 domestic equity index portfolio) and is 74% of the total allocation to international equity assets as of December 31, 2004. As of January 25, 2005, Staff was notified by SSgA that Jim Francis, Principal and the primary Portfolio Manager in charge of the CalPERS mandate, has left the firm effective February 4th, 2005.

<u>Rationale</u>

Staff's interest in bringing a portion of the FTSE International Index fund in-house is based on reducing CalPERS' dependence upon any individual manager and on the notion that globalizing internal equity management appears to be a logical next step for CalPERS both in terms of broadening in-house capabilities and in terms of according international equity a treatment more consistent with that employed in domestic equity management. Additionally, the potential for $1 million in savings in annual asset management expenses (assuming internal management on 50% of the mandate) is certainly worthy of consideration.

An array of benefits accrues to CalPERS from internal management of the domestic equity index portfolio. Primary among these are a reduction in cost, a reduction in outside manager dependence and risk concentration, an increase in staff knowledge and ability, transitional asset flexibility, and improved integration of asset allocation decisions. Moreover, in domestic equity portfolio management, CalPERS' Staff has been able to build on the internal passive management capability with the creation of enhanced / active strategies. Developing these value added strategies is predicated on having the general ability to manage within the asset class and this ability is most easily developed and deployed first through a passive mandate.

Extension of the benefits achieved on the domestic side into the international equity segment seems to make sense for CalPERS in the development of the organization's capability. Given the tremendous success of internal management of domestic equities, building an in-house international equity program would be a natural progression and round out CalPERS Staff's resident set of equity management competencies.

Following are the primary pros and cons associated with managing international equity in-house (for a more complete list of benefits, please see page two of Attachment 2).

Pros:

- Reduction in dependence upon the existing external manager who currently oversees nearly $30 billion (or almost 17% of the entire fund) at a total cost of almost $3 million. Dependence reduction seems especially prudent given that Jim Francis, SSgA's Portfolio Manager on the CalPERS account, has left effective February 4, 2005.
- Expansion of internal capabilities, including the ability to effectuate transitions and allocation shifts in a discrete manner within CalPERS.
- Cost savings, estimated at $1 million, assuming internalization of 50% of the mandate. Given a successful implementation and appetite to broaden the program, additional cost savings could be derived from internalizing emerging markets and international enhanced-index management.
- Creation of more diverse job functions aiding in employee retention and satisfaction by expanding the breadth of knowledge, experience and opportunity.

Cons:

- Personnel and technology costs associated with internal management (though the savings figure above is inclusive of these costs).

- Heightened internal responsibility for risk control.
- Greater dependency upon internal staff (but this risk is reduced to the extent we retain SSgA to manage some portion of the assets).

<u>Investment Policy</u>

Following guidance from the Committee, Staff would propose adopting a very similar investment policy statement as that used with the existing external passive international equity manager to ensure consistency. The internally managed portfolio would be measured by the same criteria and held to a common standard as the external (SSgA) portfolio in judging the results achieved.

<u>Implementation</u>

Staff has developed a thorough and robust architecture for internal management of international equity, details of which can be found in the Business Plan included as Attachment 2.

The mission of the Internal International Equity Team would be to internally manage CalPERS' international equity in a risk-controlled, index-based manner. Foremost consideration must be the maintenance of the fund's close performance and tracking error relative to the benchmark and maximization of the economic benefits available to the CalPERS Fund. This would be delivered through a portfolio management structure which applies rigorous risk control and scrutiny of portfolio returns coupled with intelligent trading and careful decision-making.

The framework that has been developed for internally managing international equity is very similar to and integrates the existing structures in place for internal management of domestic equity and currency. There are three main processes that have been created: equity analysis and trading, cash equitization and futures, and currency management. Each structure was adopted with a focus on both investment and operational risk mitigation.

<u>Personnel</u>

The portfolio would be monitored on a daily basis to ensure that exposures and performance mirror that of the benchmark. This monitoring would be carried out by a team of investment professionals highlighted by Eric Baggesen (Senior Portfolio Manager, Global Equity) and Dan Bienvenue (Portfolio Manager, Global Equity). Eric and Dan joined CalPERS from State Street Global Advisors and

Barclays Global Investors, respectively; for additional information on their backgrounds, please see page 10 of Attachment 2.

Additionally, aside from cross-training existing personnel, Staff has a pending Formal Budget Request to add an Investment Officer to support the program if the Investment Committee's preference is to pursue this initiative (please note that the expense associated with this additional position has been included in the cost analysis). Also, retention of SSgA on the other portion of the mandate appears to be a prudent course, ensuring redundancy and back-up in the international equity index allocation.

Oversight and Compliance

In addition to the Internal International Equity Team's daily monitoring, various levels of compliance scrutiny and oversight will be applied to trades, positions and portfolio performance. This oversight will take two primary forms: performance review and derivative limits.

Portfolio performance will be monitored throughout the month to ensure that results are in line with expectations. Further, monthly updates will be delivered to the Senior Portfolio Manager of Internal Equities reporting derivative exposures, country and sector mis-weights, largest security mis-weights, and tracking error for the month inclusive of an attribution of the sources of that tracking error. Quarterly, the internal equity team will convene for a peer review of performance and attribution to review performance and share investment ideas and best practices.

Policy controls will be implemented to ensure the prudent use of futures and forward contracts consistent with the best practices of international equity indexation. The primary controls will be enabled via the trade execution channel wherein the executing brokers will monitor portfolio-specific position limits. Moreover, trade execution information will be transmitted to both the Trading and Operations functions within CalPERS, serving as independent sets of checks and balances.

Materiality

The materiality of this proposal is ensured by the nearly $30 billion in the CalPERS International Equity Index Portfolio. The existing management fee on this mandate is approaching $3 million, and internal management of a portion of this portfolio would generate proportional cost savings. It is presently anticipated that up to 50% of the existing portfolio could be internalized in the near future (subject to appropriate performance by the internal team) which would generate cost savings of $1 million annually.

An additional material benefit concerns the laying of a foundation for broadening the program. A primary objective in developing an international equity management capability would be to support the creation of additional strategies that can handle meaningful amounts of capital. These anticipated additional strategies could be enhanced, alpha generating processes or could provide investment capacity in other asset categories such as emerging markets. Any expansion of the program would provide for further savings on external management fees, but is predicated on successfully managing the index component first.

Finally, at almost $30 billion, the FTSE portfolio currently managed at SSgA is 74% of CalPERS' international equity assets, 30% of Global Equity assets, and nearly 17% of total Plan assets. At more than 20 times the size of the next largest external manager, this is a highly concentrated position of both assets and risk exposure. Mitigation of this concentration would provide additional material benefits and appears especially prudent in light of the recent departure of the Portfolio Manager at SSgA.

<u>Complexity</u>

The management of international equity is somewhat more complex than that of domestic equity. The added parameters of country domicile, time zone, and currency place incremental demands on the analysis and management systems. These added parameters, however, are largely just an extension of existing CalPERS capabilities and are a subject area in which Global Equity's recent hires are well prepared. Staff has constructed a well thought out business plan that contains an information and analytical environment (as discussed in Attachment 2) that combines all of the needed inputs to allow analysis of the portfolio with the same timeliness and rigor as that used at external firms such as BGI and SSgA. The needed information links between CalPERS, State Street Custody, FTSE, executing brokers and currency dealers have been established and tested.

Appropriate monitoring and rigorous risk control should not be underestimated. The true increase in complexity, however, is something that can be managed in a robust manner through careful oversight by qualified personnel.

<u>Size and Source of Allocation</u>

Staff also solicits feedback regarding the size (both initial and ongoing) and source of the allocation. For risk mitigation purposes, Staff believes that a modest initial allocation would be prudent; additional funding would be dependent on the provision of economic efficiency and on the achieved results being competitive with those of the external manager.

The internally managed international equity portfolio could be funded most cost efficiently by the transfer of securities from the existing externally managed portfolio to avoid any transaction expense. This same mechanism can be used on an ongoing basis for additional funding.

V. STRATEGIC PLAN:

Internal management of international equity is consistent with Goal IV: Assure that sufficient funds are available, first to pay benefits and, second, to minimize and stabilize employer contributions.

VI. RESULTS/COSTS:

The primary costs associated with internal management of international equity are employee compensation and technology / data procurement. It is estimated that these costs would total approximately $500,000 per year, inclusive of the primary Portfolio Manager, an Investment Officer, one additional back-office person and all technology costs. Given the substantial potential cost savings and value added, Staff anticipates that a net improvement in CalPERS' cost structure would result from pursuing this initiative.

Daniel J. Bienvenue
Portfolio Manager

Eric B. Baggesen
Senior Portfolio Manager

Christianna Wood
Senior Investment Officer

Mark Anson
Chief Investment Officer

WILSHIRE CONSULTING

Attachment 1

MEMORANDUM

To:	**Mark Anson, CalPERS**
From:	**Michael Schlachter, CFA, Managing Director Wilshire Associates**
CC:	**Christy Wood, CalPERS** **Eric Baggesen, CalPERS** **Dan Bienvenue, CalPERS** **Roz Hewsenian, Managing Director, Wilshire Associates**
Subject:	**Internal International Equity Index Fund**
Date:	**January 25, 2005**

Wilshire was asked for our opinion on the proposal to create an internal international equity index fund and move some fraction of the assets from the State Street Global Advisors ("SSGA") portfolio. We support the concept of the idea but caution, as discussed below, that a plan for compliance and oversight needs to be more fully developed.

We see two main benefits from this proposal. First, CalPERS presently lacks a system for managing international equities in-house. The tools and systems that Staff will be required to develop in order to manage this index fund will provide a framework for the international opportunistic investment program currently under consideration by Staff. Although the members of Staff who will be directly responsible for this program have significant prior experience in managing international assets, we believe that there will be ancillary benefits to CalPERS by developing the international capabilities of other members of Staff who will be involved in this project.

Second, as stated in the Business Plan and Agenda Item, the SSGA portfolio currently comprises 17% of the entire fund and is the largest external manager by a factor of 20. We believe that CalPERS would be well served by diversifying its firm-specific risks and moving a share of these assets to a second index fund provider. In lieu of an RFP and a search for a new external manager, a well-developed internal program can fill this role.

After reviewing the Business Plan and discussing this matter with Christy Wood, Eric Baggesen, and Dan Bienvenue, our only remaining concern about this program is oversight and compliance. In the materials we have reviewed, there has not been a clear presentation of how this portfolio will be monitored. Given that the portfolio will invest in index futures in order to mitigate cash exposures and will conduct currency trades where necessary, Wilshire believes that a clear plan for controlling risk in the portfolio is warranted. We have expressed our concerns to Mr. Baggesen and Mr. Bienvenue, and they are working to clarify this matter and develop policies for internal oversight and control.

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Finally, we believe that the stated cost savings of this proposal should *not* be a consideration by the Investment Committee. If half of the assets from State Street are moved internally, Staff estimates that that the System will save approximately $1 million on direct management fees. While this is not an inconsequential sum, it is a very small fraction of the $15 billion asset base (0.67 basis points) and could be affected by unforeseen technology (start-up) or personnel (on-going) costs. In addition, Wilshire believes that there may be some hidden costs within this effort that could consume much or all of the projected management fee savings, such as a decrease in cost-free crossing opportunities currently possible through State Street.

Even if no savings are generated, however, Wilshire supports the development of this internal index fund due to the benefits that will flow from the development of Staff's abilities and the creation of an international equity management platform.

Attachment 2

Internal International Equity Indexing
Business Plan

Executive Summary

The mission of the Internal International Equity Team will be to internally manage CalPERS' international equity in a risk-controlled and value added manner. Foremost consideration must be the maintenance of the fund's close performance relative to the benchmark and maximization of the economic benefits available to the CalPERS Fund. The team will implement a portfolio management structure which applies rigorous risk control and scrutiny of portfolio returns coupled with intelligent trading and careful decision-making.

There are a number of benefits associated with internalizing international equity management including reduction in dependence upon any individual manager, enhanced control over assets and risk, flexibility and customization, cost savings, and making internal equity management global with resultant advantages for transitions and allocation shifts. Costs include personnel and technology costs as well as the focused need for rigorous risk control.

The framework to be used for internally managing international equity is very similar to and greatly leverages the existing frameworks in place for internal management of domestic equity and currency. There are three main structures that have been put into place; one for equity analysis and trading, one for cash equitization and futures, and one for currency management. Each structure was implemented with a focus on both investment and operational risk mitigation, and each mirrors internal domestic equity and internal currency management processes that are currently in place.

The portfolio will be monitored on a daily basis to ensure that portfolio exposures and performance mirror that of the benchmark. This monitoring will be carried out by a team of investment professionals highlighted by Eric Baggesen (Senior Portfolio Manager, Global Equity) and Dan Bienvenue (Portfolio Manager, Global Equity). Between them, Eric and Dan have more than 30 years of industry experience with 23 of those years in global quantitative equity management at the two largest index fund management shops in the investment management industry.

Mission Statement

The objective of this business plan is to lay out a framework for internalization of the management of a significant portion of CalPERS' custom International Index Fund. Foremost consideration must be the maintenance of the fund's close performance relative to the benchmark and maximization of the economic benefits available to the CalPERS Fund. The Internal International Equity Team will implement a portfolio management structure which applies rigorous risk control and scrutiny of portfolio returns coupled with intelligent trading and careful decision-making. This structure will ensure achievement of the appropriate results while securing an array of other benefits.

Cost / Benefit Analysis of Internal International Equity Management

The first step in an undertaking such as developing a new in-house management program is to thoroughly explore the benefits relative to the costs of such a program.

Benefits

- Dependence Reduction. Internalizing management will reduce the dependence on the existing international equity manager, State Street Global Advisors, which currently manages nearly $30 billion or almost 17% of the entire fund (more than 20 times the size of the next largest external manager).
- Control. With internal management, the CalPERS Investment Committee maintains complete control over the System's risks undertaken and assets under management.
- Base Capability. Internalizing international equity indexing provides a base capability to support the construction of in-house international enhanced/active strategies.
- Cost Savings. 1 basis point management fee on $30 billion results in $3 million in management fees. This can be compared to roughly $500k all-in cost for internal management (staff compensation, technology procurement, incidental costs). Internal management of 50% of the mandate would result in roughly $1 million in cost savings with potential for another $1.5 million.
- Capacity Utilization. Broadening internal management maximizes the value of CalPERS' current organizational capability and technology.
- Communication Synergies. Having both Domestic and International passive equity management in the same office facilitates communication between these two asset classes, which can often result in transaction cost savings and value added, especially in corporate action situations.
- Staff Knowledge. In-house International Equity expertise augments Staff's skill and knowledge set, enhancing the ability to provide oversight and value to the System.
- Staff Retention. International equity creates a more diverse set of job functions aiding in staff training, retention, and satisfaction by expanding the set of investment management exposure.
- Comparison Portfolio. Having multiple international index managers provides comparison capability that allows a better understanding of the returns generated in both externally and internally managed portfolios.
- Idea Sharing. With a greater diversity of mandates managed, an enhanced set of Best Practices can be developed, improving the overall implementation of CalPERS' Investment Program.
- Historical Advantage of Internal Management. Historically, internally managed assets have done quite well relative to those externally managed. A broadening of internal management capabilities will allow CalPERS to further capitalize on this theme.
- Globalization of Internal Management. By internalizing international management, CalPERS will now manage equity portfolios on a global basis. This can be quite beneficial in transitions and allocation shifts.

Costs

- Personnel and Technology Costs. As referenced above, there are costs associated with personnel, technology and data procurement, as well as other minor incidentals.
- Loss of “Indemnity Insurance”. With external management, there is an implicit indemnification that goes along with having a third-party responsible for the portfolio. With assets managed internally, CalPERS is the responsible party, meaning that there is no longer any potential for indemnification. To mitigate this concern, any internally managed portfolios must be implemented within a comprehensive, risk-controlled framework.
- Heightened internal responsibility for risk control.
- Greater dependency upon internal staff (but this risk is reduced to the extent we retain SSgA to manage some portion of the assets).
- Liquidity Source. Managing 100% of the assets in-house could potentially diminish CalPERS’ access to the liquidity of the external manager.

Internal International Equity Framework

To implement Internal International Equity in a risk-controlled manner, a well-developed and robust architecture is required. To provide a comprehensive overview of this architecture, following are detailed descriptions of the three separate order processes that will be adopted to control operational risks. Each description includes a step-by-step “flow” of the order, a glossary of terms and systems, and a diagram of the process.

Step-by-Step: Equity

- FactSet will be the overall portfolio management system with the Portfolio Analysis tool used to monitor portfolio exposures (security, country, sector) and the integrated Northfield Portfolio Optimizer utilized to run risk analytics and to generate trades.
- Thresholds for trading will generally be 1 basis point (bp) in security misweights and / or 5 bps of unequitized cash. Once generated in FactSet, trades will be loaded into Charles River through an automated load utility.
- In Charles River, trades will go through an automated compliance check with any issues resolved by the portfolio management team.
- Once trades are selected for transmission to brokers, they will be sent in an automated trade list through FIX protocol on the Thomson Financial Network.
- Upon execution, trade fills will be returned via FIX protocol back into Charles River.
- After portfolio management review of the trades, they will be cleared for back office use and sent to Omgeo CTM for affirmation and matching. All trades will be matched by the end of the day on trade-date.
- Once all trades are matched, they will be sent downstream to State Street Custody for inclusion as new portfolio positions and to be included in the next day’s valuation. This process will occur through Omgeo’s Settlement Notification (SN) system.
- State Street will receive matched trades and will settle as appropriate with the broker’s custodian.
- The CalPERS Fiscal Team will perform portfolio accounting reconciliation between Charles River and State Street via PAM.

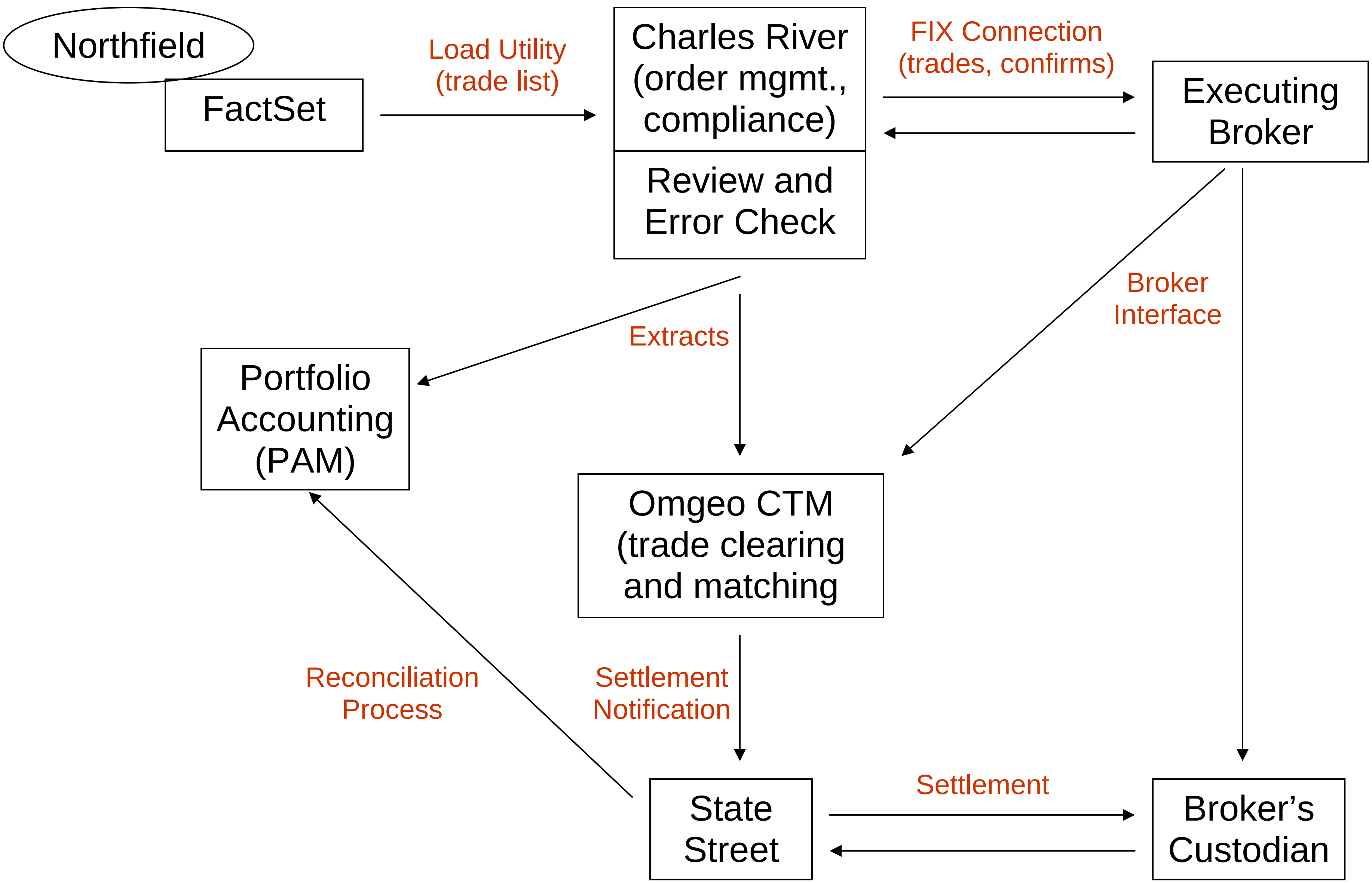
Glossary: Equity

- FactSet. FactSet is a third-party system well known for providing data transmission and analysis tools. FactSet ingests FTSE data on CalPERS’ custom benchmark (Developed World Ex US Ex Tobacco) as well as portfolio holdings data on CalPERS’ portfolios. FactSet is one of the systems used by the External Management team to oversee CalPERS’ external managers.

- Northfield Portfolio Optimizer (NPO). NPO is a third-party risk analysis model and portfolio optimization tool. Northfield competes in the same space as BARRA and is well known for their quantitative risk models and trade generation engines.
- Charles River. Charles River is an industry-leading, third-party order management system (OMS) that has been in use by the Domestic Internal Index team for over a year. It is used on equity, futures and currency trades to perform compliance checks and to route trades to brokerage counterparties. It is also used for generation of PAM messages.
- FIX Protocol. FIX is an equity trade transmission protocol that is rapidly becoming the universal standard for trade order transmission.
- Omgeo Central Trade Manager (CTM). Omgeo is an organization 51% owned by the Depository Trust Clearing Corporation (DTCC) and 49% owned by Thomson Financial. CTM is Omgeo's back office matching and affirmation system used to ensure agreement between CalPERS and brokers before transmission to State Street for settlement. Omgeo's domestic product has been in place within CalPERS for over a year.
- Omgeo Settlement Notification (SN). SN is an automated method for delivery of matched executions from the CalPERS back office to the custodian for settlement. Transmission is done with SWIFT messaging and is used in place of a manual, phone / fax process.
- Portfolio Accounting and Management (PAM). PAM is a third-party system used by the CalPERS Fiscal office to perform a daily reconciliation between State Street and CalPERS data.

Equity Flow

Attachment 2



Internal International Equity Framework (contd.)

Step-by-Step: Futures

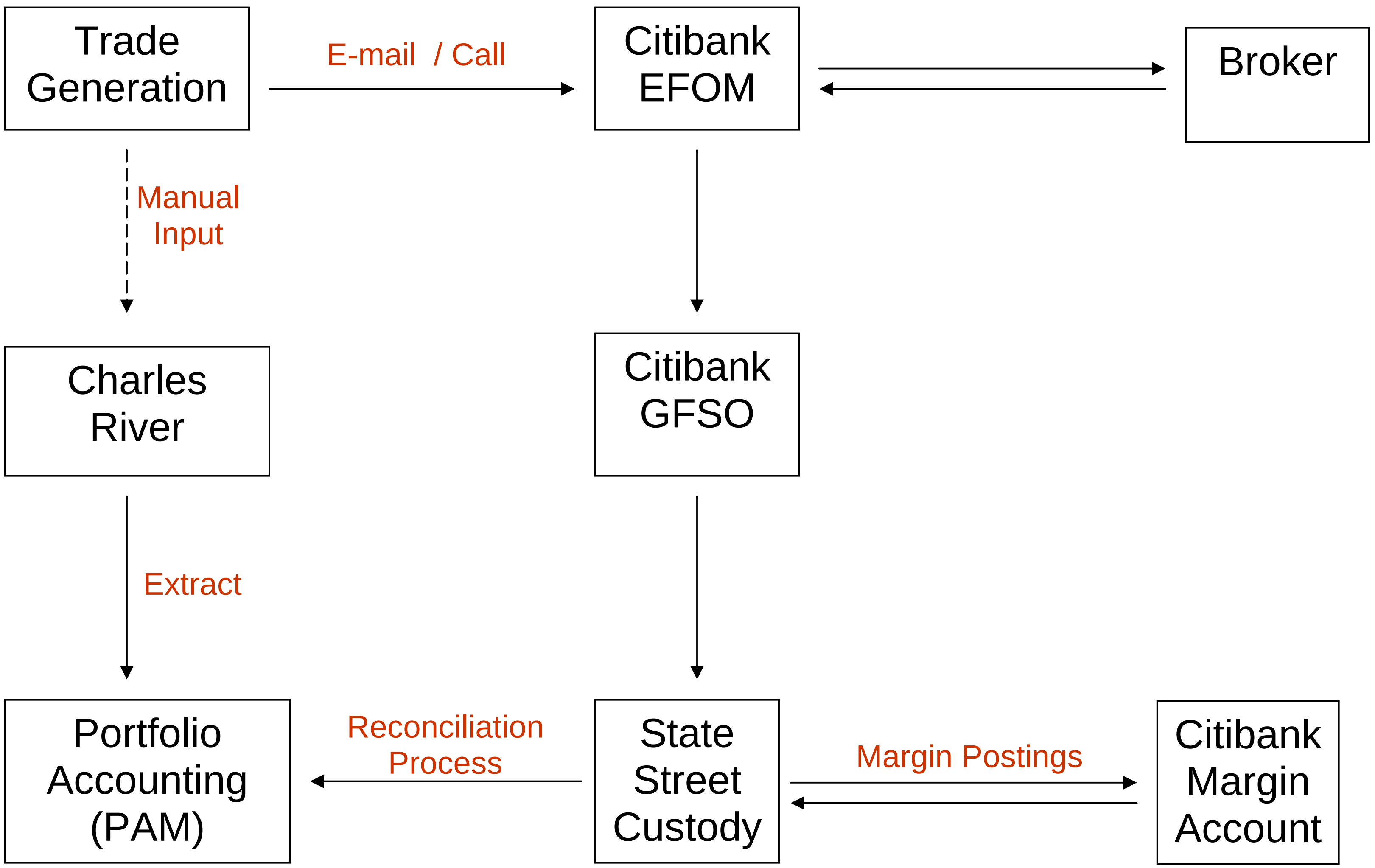
- Futures trades will be generated using State Street daily valuations, comparing total fund net assets to equity positions and ensuring minimal cash exposure.
- Trades will be transmitted via e-mail and phone call to Citibank EFOM and onto brokers for execution.
- Executions will come back into EFOM and monitored for quality, subsequently being sent on to Citibank GFSO.
- GFSO will be used by the Operations team to monitor and validate margin requirements, being forwarded to the International Internal Equity Team for decision-making. GFSO will also be used to send executions to State Street for valuation inclusion.
- The Operations team will liaise with State Street for margin posting and repatriation.
- Futures trades will also be input into Charles River for generation of PAM messages for Portfolio Accounting reconciliation.

Glossary: Futures

- Citibank Futures Clearing Merchant (FCM) Services. Citibank has been CalPERS' FCM for the Domestic Internal Equity team for the past fifteen years. In this capacity, Citibank clears all trades and does all appropriate margining of the account.
- Citibank Electronic Futures Order Management (EFOM). Citibank EFOM is a third-party system used to transmit futures orders from CalPERS to the brokerage community for execution.
- Citibank Global Futures Services Online (GFSO). Citibank GFSO is the back-office position monitoring and reporting system currently in use by the Operations Team on the Internal Domestic Equity portfolios. It is used to monitor positions and executions, transmit executions to State Street and to calculate margin requirements.

Attachment 2

Futures Flow



Internal International Equity Framework (contd.)

Step-by-Step: Currency

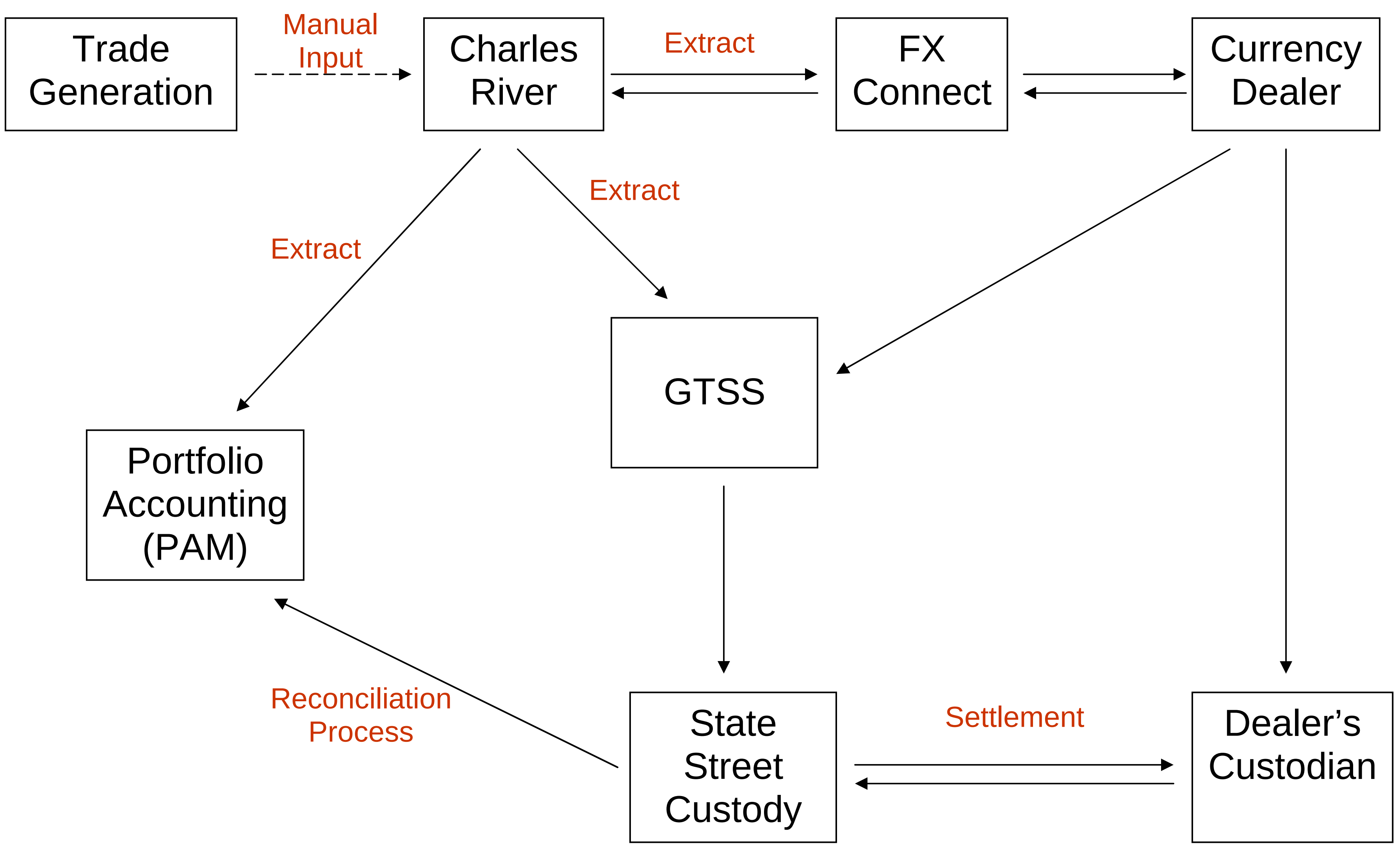
- After equity trade transmission, all orders will be aggregated by currency and compared to currency balances to determine currency trading needs.
- Currency trades will be generated and input into Charles River for transmission to brokers via FX Connect.
- FX Connect will be used to transmit trades to brokers for competitive bid and execution, with executions flowing back into Charles River using an automated extract.
- Once validated in Charles River, executions will be forwarded to GTSS for matching purposes and then sent on to State Street for wire settlement.
- Wires will be settled between State Street Custody and the currency dealer's custodian.
- Executions will also be sent from Charles River to Portfolio Accounting for reconciliation with State Street through PAM.

Glossary: Currency

- Global Link. Global Link is a wholly owned subsidiary of State Street Capital Markets. It owns and publishes various software packages used to transmit orders within the capital markets.
- FX Connect. FX Connect is the currency trading system within Global Link that is used to garner competitive bids and to execute currency trades.
- Global Trading Support Services (GTSS). GTSS is the back-office matching system within the Global Link framework that is used to match currency trades before submission to the custodian for wire settlement.

Attachment 2

Currency Flow



Portfolio Management and Personnel

Daily Management

The portfolio will be monitored and analyzed daily for security, country, and sector misweights. Cash exposures, both in terms of trade-date balances (ensuring minimal cash and currency exposures) and settlement-date balances (ensuring no overdrafts in any of the various currencies) will also be evaluated to ensure that risk is rigorously controlled. Any benchmark deviations will be carefully managed and portfolio positions will be adjusted as necessary.

Personnel

The Internal International Equity Team responsible for day-to-day management will consist of one Portfolio Manager and one Investment Officer. Additionally, the Senior Portfolio Manager of Internal Equities will be available to provide coverage and oversight as well as cross-training with the Internal Domestic Equity Team. Biographies for the Senior Portfolio Manager and Portfolio Manager are as follows:

Eric B. Baggesen, CFA
Senior Portfolio Manager, Internal Equities
Eric has over 20 years of investment management experience having performed both analyst and portfolio manager activities. Over 15 years of his experience has been in portfolio management of quantitative and structured equity mandates. Most recently, Eric was the Unit Head of Emerging Markets in the Global Structured Products Group at State Street Global Advisors for 8 years. In this capacity, Eric managed the team responsible for over $5 billion of emerging market equities plus an additional $30 billion of global equities including the CalPERS FTSE index portfolio. Prior to SSgA, Eric spent 7 years as a Senior Portfolio Manager with PanAgora Asset Management. Eric has both Bachelor's and Master's degrees from the University of Rhode Island and is a CFA Charter holder.

Daniel J. Bienvenue, CFA
Portfolio Manager, Internal Equities
Dan has more than 10 years of experience in the investment industry with 7 of those years in quantitative and index fund management of global equity portfolios at Barclays Global Investors. At BGI, Dan served as a Principal and Senior Portfolio Manager, overseeing a team portfolio managers in the Sacramento office and responsible for $60 billion in global equities across developed and emerging markets. Prior experience includes going through the Analyst program at JPMorgan Securities in New York in roles ranging from equity brokerage to fixed income trading. Dan graduated Phi Beta Kappa (with Honors) from the University of California, Davis where he majored in Economics and was an Academic All American (wrestling). He attended the Berkeley Program in Finance at the Haas School of Business (University of California, Berkeley) and is a CFA Charterholder.

Oversight and Compliance

In order to ensure that the internally-managed portfolio delivers performance in line with expectations, it is crucially important to have an appropriate set of checks and balances in place. These checks and balances will take many forms and will occur at various stages of the portfolio management and trading process but there are three key protocols that are worthy of mention.

Trade Review

Actions that carry with them the potential for investment exposure will be reviewed by a second member of the Team. Trades, be they equity, currency or futures, will be the main events falling into this category, but also included are certain corporate action responses and exposure targets.

Portfolio Performance and Oversight

Much like portfolio exposures, the Internal International Equity Team will monitor the performance of the portfolio versus that of the benchmark throughout the month. Any deviations in tracking will be researched for explanation and to confirm that the portfolio is performing as expected. At the end of every month, the Team will provide to the Senior Portfolio Manager of Internal Equity a portfolio overview that will contain such items as derivatives and cash exposures, country, sector and security misweights, and relative performance of the portfolio versus the benchmark with an explanation of any tracking error. The Senior Portfolio Manager will review these monthly reports and ensure comfort with their contents. Additionally, this portfolio will be included in the quarterly peer review meeting in which all portfolio management constructs and decisions are discussed, and portfolio performance assessed.

Trade and Position Limits

Because of the potential for leverage implicit with derivatives usage, derivative positions and trades will be subject to even further scrutiny than the above to maintain absolute assurance that risk-limits are adhered to in real time. These controls take 3 main forms:

1. Position limits with CalPERS' Futures Clearing Merchant (FCM). Every portfolio will have an exposure limit that will be enforced by Citigroup. Any trade attempted that would cause the aggregate dollar exposure of the portfolio to exceed this limit will not be accepted.
2. Internal trade and position limits. Charles River is CalPERS' internal order management and compliance system. Within Charles River, compliance rules will be established and enforced to ensure that pre-determined thresholds of both trades and positions are not exceeded.
3. Dual reporting lines. All trades and positions will be monitored by the Operations Team (reporting up through the Assistant Executive Officer of Investments) to ensure that margin is posted punctually and that appropriate checks are in place.

Anticipated Timeline

Date	*Event*
February, 2005	Investment Committee Information Item
1st Quarter, 2005	Testing of the system / process and parallel management of a shadow portfolio
March, 2005	Investment Committee Action Item
March, 2005	Policy Subcommittee Proposal
April, 2005	Policy to Investment Committee for Ratification (as applicable)
April, 2005	Transition logistics for portfolio launch
May, 2005	Launch of Internal International Equity Index Portfolio

Contributors

A great deal of work has gone into the exploration and establishment of CalPERS' Internal International Equity capabilities. While it would be impossible to thank everyone involved, the following individuals certainly deserve mention.

CalPERS Internal Staff

- Jason Stokes: Project Manager on the systems and back-office infrastructure.
- Lee Ann Nation: Manager of the Operations Team responsible for procedure development and training.
- Matt Flynn: Overall manager of the Investments Operations Group providing problem-solving ideas and support.
- Peter Radlick: Operations staffer responsible for development of futures margin monitoring and procedure development.
- Hally Cahssai: Operations staffer responsible for development of trade-date cash forecasting and procedure development.
- Syed Hamid: Connectivity technologist responsible for implementing and testing systems connectivity.
- Nancy Johnson: Manager of the Technology Team supporting to the project.
- Mary Nobbe: Representative from Fiscal responsible for ensuring proper data flow and PAM testing.

Onsite Consultants and Vendors

- Dennis Harbison: Charles River business consultant and expert on the overall CalPERS Investment Office architecture.
- Linus Crawford: Charles River technology consultant responsible for system interfaces and coding.
- Mark Evangelisti: Database administration consultant responsible for data extraction and transmission.
- Mike Johnson: Onsite State Street Custody representative responsible for portfolio custody issue resolution.

Conclusion

Given the cost savings, enhanced control and flexibility for the Investment Committee, and the myriad of other benefits, adoption of Internal Management of International Equity appears to be a prudent decision. In order to implement the program in a controlled manner, however, a careful approach must be undertaken to ensure that risks, both investment and operational, are mitigated. The process described above, coupled with CalPERS Staff's detailed knowledge and experience in international quantitative equity management, will accomplish the dual goals of capitalizing on the advantages while allaying the potential risks associated with internal management.